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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/634,384	08/09/2000	Harold R. Blomquist	TRW(VSSIM)4784	5166
26294	7590	04/07/2004	EXAMINER	
TAROLLI, SUNDHEIM, COVELL & TUMMINO L.L.P. 526 SUPERIOR AVENUE, SUITE 1111 CLEVEEVLAND, OH 44114			MILLER, EDWARD A	
			ART UNIT	PAPER NUMBER
			3641	
DATE MAILED: 04/07/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/634,384

Applicant(s)

BLOMQUIST ET AL.

Examiner

Edward A. Miller

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 December 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 33 and 35-45 is/are pending in the application.
- 4a) Of the above claim(s) 45 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 33 and 35-44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 33 34-45 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

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1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Newly submitted claim 45 is directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: see the following paragraph.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claim 45 is withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

3. Restriction has been required to one of the following inventions under 35 U.S.C. 121:

I. Claims 33 and 35-44, drawn to a primer, classified in class 102, subclass 202.5.

II. Claim 45, drawn to an vehicle protection device, classified in class 280, subclass 737.

4. The inventions are distinct, each from the other because:

5. Inventions II and I are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because the subcombination is not itself patentable. The subcombination has separate utility such as in bombs and other military devices.

6. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper. Applicant is required to adhere to the prior election by original presentation and via RCE, continued examination of the same invention originally presented.

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7. Claims 33 and 35-44 rejected under 35 U.S.C. 102(e) as being anticipated by, or under 35 USC 103(a), as unpatentable over Martin et al.

In Martin et al, note col. 12, lines 15-61. There, particulate ammonium perchlorate (AP) oxidizer and nano aluminum particles are combined to form a powder. In lines 51-61, this powder is ignited by a hot bridge wire. Thus, prior to ignition, the arrangement comprised an electrically actuatable igniter comprising a pair of leads or electrodes, and a bridge wire in contact with the loose ignition material particles. Since the bridge wire ignited the particles, the bridge wire must have been contacted with a pair of electrodes (one for positive and one for negative, voltage/current from a powder supply) to supply the electricity which fired the bridge wire and ignited the powder, even though the wires or electrodes are not mentioned.

In col. 5, lines 56-63 and col. 6, lines about 5-20, ALEX (exploded aluminum) is a preferred method of preparing the nano aluminum. Thus, it is believed that the nano aluminum above was exploded aluminum, in which the claims are anticipated, or such would have been clearly obvious. The properties claimed such as temperatures, etc., must be inherent in the composition, as the concrete limitations are all met or at least clearly obvious. To the extent necessary, including as possibly relevant to indefinite claims 42-44, variation of specific size or other well known parameters would have been obvious. It is well settled that optimizing a result effective variable is well within the expected ability of a person or ordinary skill in the subject art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980), *In re Aller*, 220 F.2d 454, 105 USPQ 233 (CCPA 1955).

Further, to the extent necessary, it is obvious to eliminate an element and its function, see MPEP 2144.04, the part "Omission of an Element and Its Function Is Obvious If the Function of the Element Is Not Desired," including *Ex parte Wu*, 10 USPQ 2031 (Bd. Pat. App. & Inter. 1989) and *In re Kuhle*, 526 F.2d 553, 188 USPQ 7 (CCPA 1975).

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8. Claims 33, 36-42 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kelly et al., in view of Higa et al., Martin et al., Wheatley and Lundstrom.

Kelly et al. teach thermite compositions in contact with the bridge wire of an electrically actuated igniter, comprising a pair of electrodes, a bridge wire and an ignition material of thermite. Note the Abstract, the Figure, and col. 3, lines 30-66. To the extent necessary, variation of the specific details of the thermite ingredients would have been obvious to one of ordinary skill in the art, in view of Higa et al., Martin et al., Wheatley and Lundstrom. Higa et al. teach "super thermite" in the Abstract, and for use in various applications including pyrotechnics. This includes the specific nano aluminum powder that patentees teach, which is said to be improved over electro-exploded aluminum at col. 1, lines 12-51, especially lines 45-51. Small particle size is beneficial for more rapid and complete reaction, col. 1, lines 25-26, as is well known in the art. Thus, it would have been obvious to substitute super thermite for the small size thermite of Kelly et al. for the expected benefit, improved reaction. Martin et al., Wheatley and Lundstrom teach further regarding the benefits obtained by the use of small sized particles. In any event, variation of particle size which directly effects the reactivity in a known manner, would have been obvious for the expected result. Note the case law cited in paragraph 6 above, including the newly cited case law.

9. Claims 33 and 35-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baginski, in view of Halcomb et al., Dixon et al., Wheatley and Lundstrom.

Baginski teach the basic invention of electro-explosive primers in broad outline at col. 1, lines 23-36, with a pyrotechnic mix around a bridgewire. The pyrotechnic mix or composition is set forth at col. 8, line 60- col. 9, line 9 with certain advantages thereof. Further, at col. 9, lines 61-67, the compositions may be the usual metal fuel/oxidizer mixes known in the pyrotechnic arts. However, the specifics of the metal particulates are not specifically taught. Halcomb et al. teach a

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similar device, with the pyrotechnic composition further disclosed at col. 1, lines 62-68 and col. 2, lines 40-47, with metal fuel plus metal oxide oxidizer, as at col. 9, line 65 of Baginski. However, the particle size details are still not taught. Dixon et al. in the Abstract, teach that pyrotechnic ignition mixtures of metal and oxide oxidizer may be around 0.1 microns in size, and that the aluminum, as is notoriously well known, is in the form of particulates which are coated with a surface oxide layer, which serves to desensitize the metal powder. Wheatley teaches exploded metal powder which is used with salt oxidizers, and use of this form of metal powder would have been obvious, in the expectation of results in accordance with the properties shown in similar pyrotechnic compositions. See The Abstract and col. 1, lines 45-55 of Wheatley. Lundstrom further shows, with ignition compositions at col. 2, lines 53-57 and at col. 3, lines 7-24, that hot particulates are part of the ignition mechanism, and that ignition may be promoted with the use of small particle size metals or metal oxides. Use of agglomerate particles is notoriously well known in the art. In short, substitution of specific metal fuel particulate compositions for similar metal fuel particulates for the expected results would have been obvious. The electro-exploded metal particulates of Wheatley are the identical product by the identical manufacturer. Note the above cited case law.

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be

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calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

11. Any inquiry concerning either this or an earlier communication from the Examiner should be directed to Examiner Edward A. Miller at (703) 306-4163. Examiner Miller may normally be reached Monday-Thursday, from 10 AM to 7 PM.

If attempts to reach Examiner Miller by telephone are unsuccessful, his supervisor Mr. Carone can be reached at (703) 306-4198.

If there is no answer, or for any inquiry of a general nature or relating to the application status, please call the Group receptionist at (703) 308-1113.

Miller/em
April 5, 2004

A handwritten signature in black ink, appearing to read 'Edward A. Miller', with a stylized, cursive script.

EDWARD A. MILLER
PRIMARY EXAMINER